

**METHODS AND SYSTEM OF VIRTUAL CIRCUIT IDENTIFICATION BASED ON BIT  
PERMUTATION OF LINK NUMBERS FOR MULTI-STAGE ELEMENTS**

**ABSTRACT**

- 5 **[078]** A method and system of assigning paths through an interconnection network (100) consisting of a plurality of switching elements (102:165) and a plurality of links coupling the switching elements (102:165) are provided. Physical restrictions of the interconnection network (100) are used to arrive at a logical representation of an architecture of the interconnection network (100). Traffic patterns of the interconnection network (100) are determined to balance the data traffic through the links coupling the switching elements (102:165). The logical representation and traffic patterns of the interconnection network (100) are used to setup virtual channel identifiers that determine paths through the switching elements and links so that data traffic is more evenly distributed through the interconnection network (100).

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